

## REMARKS

Claims 1–14 are pending in the application. These claims were rejected as follows:

Claims / Section	35 U.S.C. Sec.	References / Notes
2–4 & 9–11	§112, First Paragraph Enablement	<ul style="list-style-type: none"><li>• Lack of enablement for second signal portion.</li></ul>
1, 5–6, 8, &12–13	§102(b) Anticipation	<ul style="list-style-type: none"><li>• Williamson (U.S. Patent No. 5,091,952)</li></ul>
7 and 14	§103(a) Obviousness	<ul style="list-style-type: none"><li>• Williamson, et al. (U.S. Patent No. 5,091,952); and</li><li>• Wagner (U.S. Patent No. 4,845,757).</li></ul>

5       Applicants have amended claims 2 and 9 to address the enablement issue, and have also provided discussion for distinguishing the present invention, with claims as amended, from the art cited against it.

Applicants' use of reference characters below is for illustrative purposes only and is not intended to be limiting in nature unless explicitly indicated.

10      **35 U.S.C. §112, FIRST PARAGRAPH ENABLEMENT, CLAIMS 2–4 AND 9–11 LACK OF ENABLEMENT**

1. *Base claims 2 and 9 for the rejected claims have been amended to correct the sentence structure and remove the ambiguity of the phrase “from the first signal portion”.*

15       In the OA, on pp. 2–3, the Examiner indicated that claim 2–4 and 9–11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The language the Examiner found as lacking

enablement relates to the generation of an estimated signal for the second signal portion utilizing a model from the first signal portion. [Emphasis in OA]

The present invention relates to a device for feedback compensation, wherein the compensation parameters are set depending 5 on a distance of a loop gain of the feedback system to a predetermined stability limit. Paragraph [0009] of the specification defines this distance. The aim is that the product of the hearing device amplification with the feedback damping is lower than 1 (gain inequality:  $g_{\text{signalprocessing}} \times g_{\text{feedback}} < 1$ ). The gain of the signal processing together with the gain of the feedback form a loop 10 gain. The estimation unit uses the loop gain to estimate the distance from a stability limit (usually 1).

According to claim 2, the estimation is performed (see Figure 2) by detecting a first signal portion and a second signal portion from the input signal by filters 6 and 7, for instance. Then, from the first signal portion, an estimated 15 signal for the second signal portion is generated by utilizing a model. The generation of an estimated second signal portion is described in paragraphs [0011], [0012], [0017] and [0019] in the Specification. Thus, the words "from the first signal portion" do not relate to the model, but rather to the generation of the estimated signal.

20 Claims 2 and 9, from which the remaining enablement-rejected claims depend, have been amended to clarify the potential confusion created with the original wording of the claims.

Applicants assert that the amended claim language is thus enabled by the Specification, and respectfully request that the 35 U.S.C. §112 rejection be withdrawn from the application.

**35 U.S.C. §102(b), CLAIMS 1, 5–6, 8, AND 12–13 ANTICIPATION BY WILLIAMSON**

- 5        2. *Williamson fails to teach or suggest all limitations of independent claims 1 and 8 in the application, including, at least, a failure to teach that the feedback compensation is performed in dependence on the system distance of the loop gain of the feedback system to a stability limit. Williamson simply teaches the modeling for estimating the feedback signal is performed by a pure*
- 10      *delay function carried out on the output signal.*

On pp. 3–4 of the OA, the Examiner rejected claims 1, 5–6, 8, and 12–13 as being anticipated by Williamson. In relevant part, the Examiner stated that Williamson teaches:

- 15      [A]n estimation unit (310) that is connected between the signal input device (300) and the feedback reduction device (+ 1, sign, 309), and with which an estimated value of a system distance (delay, 308 and see col. 8 line [sic] 6–9) that is defined by a distance of loop gain of the feedback system to its
- 20      predetermined stability limit can be determined from the input signal, such that parameters of the feedback reduction device are controllable using the estimated value see col. 8 line 1 – col. 9 line 36).

Although Williamson teaches a feedback reduction system in which the acoustic feedback is estimated, the parameters of a filter are set depending on a compensated signal  $y(t)$  and a feedback estimation signal  $z(t)$ . The modeling for estimating the feedback signal is performed by a pure delay function 308 carried out on the output signal  $w(t)$ .

In contrast to this, the feedback compensation of the present invention is performed in dependence on the system distance of the loop gain of the feedback system to a stability limit. That is, the compensation depends on a value which defines the acoustic stability of the system. Instability, however,

5 leads to undesired artifacts (see paragraph [0003] of the Specification).

Also, since feedback compensation systems lead to artifacts, such feedback compensation systems are only be activated when necessary. This necessity can be estimated with the system distance to the stability limit. For example, a feedback might be acceptable if the amplification of the signal

10 processing is low. The same feedback might be unacceptable when the signal processing amplification is much higher, so that howling appears. Such discrimination cannot be provided by Williamson automatically.

Looking to the language required by claims 1 and 8, the Examiner alleges that Williamson discloses estimating the value of a system distance with the

15 delay function 308. However, the delay function leads to an estimated feedback, but not to the distance as expressly required by claims 1 and 8 as the "distance of loop gain of the feedback system to its predetermined stability limit". Furthermore, as required by claims 1 and 8, the distance is determined from the input signal. This is not the case in the system of Williamson, where the estimated

20 feedback is obtained from the output signal  $w(t)$  and the filter parameters are estimated on the basis of the compensated signal  $y(t)$ . However, the feedback reduction device in Williamson is not controlled on the basis of the uncompensated input signal  $x(t)$  as required by claims 1 and 8 of the present application.

Since Williamson lacks a teaching of all elements required by claims 1 and 8, applicants respectfully assert that claims 1 and 8, and all claims that depend therefrom, are not anticipated by Williamson.

**35 U.S.C. §103(a), CLAIMS 7 AND 14 OBVIOUSNESS OVER WILLIAMSON IN VIEW OF WAGNER**

*3. Applicants rely on the arguments above with regard to the elements disclosed by Williamson and assert that the missing elements of Williamson are not taught by the addition of Wagner.*

In the OA, on pp. 4–5, the Examiner indicated that claims 7 and 14 are 10 rejected under 35 U.S.C. §103 as being obviated by the combination of Williamson and Wagner.

Applicants respectfully assert that Wagner fails to provide the missing teaching for the independent claims as discussed above. The Examiner cited Wagner for its disclosure of the at least one oscillation detector and the at least 15 one narrow-band filter device.

Without addressing the teachings of Wagner as applied to the limitations added by claims 7 and 14, Applicants note that Wagner also fails to teach or suggest the missing element from the independent claims, i.e., that the feedback compensation is performed in dependence on the system distance of the loop 20 gain of the feedback system to a stability limit, and therefore, this combination of

For these reasons, the Applicants assert that the claim language clearly distinguishes over the prior art, and respectfully request that the Examiner withdraw the §103(a) rejection from the present application.

### CONCLUSION

Inasmuch as each of the objections have been overcome by the amendments, and all of the Examiner's suggestions and requirements have been satisfied, it is respectfully requested that the present application be reconsidered, 5 the rejections be withdrawn and that a timely Notice of Allowance be issued in this case.

Any shortages of fees due may be charged to, and any overpayments may be credited to, deposit account no. 50-1519.

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Respectfully submitted,

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